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WR-35
Rev. 8/23/13

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-017-06464 County Doddridge District Central
Quad Oxford 7.5' Pad Name Fritz Pad Field/Pool Name ----
Farm name Horton, Judy A. Well Number Hayden Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop St. City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4342780m Easting 513816m
Landing Point of Curve Northing 4343195.52m Easting 513961.67m
Bottom Hole Northing 4345220m Easting 513010m

Elevation (ft) 1053' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air- Foam & 4% KCL
Mud- Polymer

Date permit issued 3/12/2014 Date drilling commenced 5/22/2014 Date drilling ceased 8/21/2014
Date completion activities began 10/1/2014 Date completion activities ceased 1/26/2015
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 97' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1143', 1529' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1429' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: _____

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API 47-017 - 06464 Farm name Horton, Judy A. Well number Hayden Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	90'	New	94# K-55	N/A	Y
Surface	17- 1/2"	13- 3/8"	362'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2512'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	15327'	New	23# P-110	N/A	Y
Tubing		2-3/8"	6880'		4.7# N-80	N/A	
Packer type and depth set		N/A					

Comment Details Sidetrack at 7600'

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	84 sx	15.6	1.18	86	0'	8 Hrs.
Surface	Class A	414 sx	15.6	1.18	251	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1000 sx	15.6	1.18	787	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	898 sx (Lead) 1388 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.8 Tail	3050	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15327' MD, 6673' TVD (BHL); 6691' TVD (Deepest point drilled) Loggers TD (ft) 15278'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6627'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Washington Unit 2H API#47-017-06371). Please reference the wireline logs submitted with Form WR-35 for Washington Unit 2H. A Cement Bond Log has been included with this submittal.

Check all wireline logs run caliper density deviated/directional induction neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

Conductor- 0

Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface

Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED

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API 47- 017 - 06464 Farm name Horton, Judy A. Well number Hayden Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6530' (TOP) TVD	6876' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3600 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 6138 mcfpd Oil 4 bpd NGL --- bpd Water 0 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	0		0		

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Patterson - UTI Drilling Company, LLC
Address 207 Carlton Dr. City Eighty Four State PA Zip 15330

Logging Company STRC
Address 1560 Good Hope Pike City Clarksburg State WV Zip 26301

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company US Well Services
Address 533 Industrial Park Dr. City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233
Signature [Signature] Title Permit Representative Date 7/22/2015

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API 47-017-06464 Farm Name Horton, Judy A. Well Number Hayden Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	1-Oct-14	15,066	15,234	60	Marcellus
2	12-Dec-14	14,867	15,035	60	Marcellus
3	13-Dec-14	14,669	14,836	60	Marcellus
4	13-Dec-14	14,470	14,638	60	Marcellus
5	13-Dec-14	14,271	14,439	60	Marcellus
6	13-Dec-14	14,073	14,240	60	Marcellus
7	14-Dec-14	13,874	14,041	60	Marcellus
8	14-Dec-14	13,675	13,843	60	Marcellus
9	15-Dec-14	13,477	13,644	60	Marcellus
10	15-Dec-14	13,278	13,445	60	Marcellus
11	15-Dec-14	13,079	13,247	60	Marcellus
12	16-Dec-14	12,880	13,048	60	Marcellus
13	16-Dec-14	12,682	12,849	60	Marcellus
14	16-Dec-14	12,483	12,651	60	Marcellus
15	16-Dec-14	12,284	12,452	60	Marcellus
16	17-Dec-14	12,086	12,253	60	Marcellus
17	17-Dec-14	11,887	12,055	60	Marcellus
18	17-Dec-14	11,688	11,856	60	Marcellus
19	17-Dec-14	11,490	11,657	60	Marcellus
20	18-Dec-14	11,291	11,458	60	Marcellus
21	18-Dec-14	11,092	11,260	60	Marcellus
22	18-Dec-14	10,894	11,061	60	Marcellus
23	1-Jan-15	10,695	10,862	60	Marcellus
24	2-Jan-15	10,496	10,664	60	Marcellus
25	2-Jan-15	10,297	10,465	60	Marcellus
26	2-Jan-15	10,099	10,266	60	Marcellus
27	2-Jan-15	9,900	10,068	60	Marcellus
28	3-Jan-15	9,701	9,869	60	Marcellus
29	3-Jan-15	9,503	9,670	60	Marcellus
30	3-Jan-15	9,304	9,472	60	Marcellus
31	3-Jan-15	9,105	9,273	60	Marcellus
32	4-Jan-15	8,907	9,074	60	Marcellus
33	4-Jan-15	8,708	8,876	60	Marcellus
34	4-Jan-15	8,509	8,677	60	Marcellus
35	4-Jan-15	8,311	8,478	60	Marcellus
36	5-Jan-15	8,112	8,279	60	Marcellus
37	5-Jan-15	7,913	8,081	60	Marcellus
38	5-Jan-15	7,714	7,882	60	Marcellus
39	5-Jan-15	7,516	7,683	60	Marcellus
40	6-Jan-14	7,317	7,485	60	Marcellus
41	6-Jan-14	7,118	7,286	60	Marcellus
42	6-Jan-14	6,920	7,087	60	Marcellus

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API 47-017-06464 Farm Name Horton, Judy A. Well Number Hayden Unit 1H

EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	26-Oct-14	63.0	7,499	N/A	4,896	202,190	6,281	N/A
2	12-Dec-14	60.0	7,438	5,968	5,275	163,130	6,917	N/A
3	13-Dec-14	31.9	7,203	5,693	4,917	237,450	6,402	N/A
4	13-Dec-14	57.9	6,872	5,358	5,243	85,013	5,795	N/A
5	13-Dec-14	63.1	7,554	5,434	4,503	237,375	6,344	N/A
6	14-Dec-14	63.4	7,087	5,432	5,590	237,270	6,183	N/A
7	14-Dec-14	64.1	7,144	5,479	4,070	236,350	6,374	N/A
8	15-Dec-14	62.8	6,963	5,404	4,699	237,255	6,280	N/A
9	15-Dec-14	64.0	6,583	5,157	4,363	236,320	6,285	N/A
10	15-Dec-14	62.0	7,046	5,264	5,387	236,360	6,305	N/A
11	15-Dec-14	64.6	6,708	5,386	4,603	237,900	6,236	N/A
12	16-Dec-14	64.3	7,111	5,372	4,687	219,830	6,038	N/A
13	16-Dec-14	63.0	6,847	5,297	4,596	236,060	5,504	N/A
14	16-Dec-14	62.2	6,815	5,398	5,209	210,050	6,187	N/A
15	16-Dec-14	63.5	6,685	5,293	5,039	237,040	6,124	N/A
16	17-Dec-14	62.0	6,738	5,261	4,663	236,760	6,218	N/A
17	17-Dec-14	63.0	7,383	5,704	5,114	199,035	6,715	N/A
18	17-Dec-14	64.1	7,099	5,740	4,975	226,395	6,143	N/A
19	18-Dec-14	64.7	7,074	5,475	5,361	237,395	6,161	N/A
20	18-Dec-14	65.0	6,744	4,885	5,246	236,340	6,087	N/A
21	18-Dec-14	63.0	6,842	5,718	5,114	236,900	6,078	N/A
22	18-Dec-14	64.3	6,989	5,629	4,885	237,230	6,040	N/A
23	2-Jan-15	63.8	6,520	5,411	5,186	237,070	6,068	N/A
24	2-Jan-15	63.0	6,322	5,418	5,307	238,710	6,031	N/A
25	2-Jan-15	64.0	6,308	5,443	5,286	238,675	6,018	N/A
26	2-Jan-15	66.0	6,261	5,178	5,254	237,050	5,993	N/A
27	3-Jan-15	65.8	6,439	5,199	5,211	237,100	5,959	N/A
28	3-Jan-15	63.5	6,323	5,568	4,992	237,325	5,944	N/A
29	3-Jan-15	64.0	6,763	5,375	5,386	236,345	5,992	N/A
30	3-Jan-15	62.6	6,560	5,429	5,422	237,200	5,927	N/A
31	4-Jan-15	64.9	6,181	5,100	5,311	234,710	5,917	N/A
32	4-Jan-15	63.9	6,053	4,971	5,311	236,915	5,893	N/A
33	4-Jan-15	64.6	6,043	5,261	5,178	237,105	5,860	N/A
34	4-Jan-15	66.1	6,118	4,932	5,225	235,100	5,851	N/A
35	5-Jan-15	65.2	5,982	4,928	4,978	237,150	5,818	N/A
36	5-Jan-15	64.1	6,199	5,007	5,103	237,330	5,829	N/A
37	5-Jan-15	62.9	6,513	5,568	4,789	232,110	5,839	N/A
38	5-Jan-15	61.0	6,647	5,339	5,647	175,625	6,236	N/A
39	5-Jan-15	62.0	6,442	5,393	4,696	240,360	5,970	N/A
40	6-Jan-15	63.0	6,342	5,157	4,495	205,475	5,735	N/A
41	6-Jan-15	64.0	6,148	5,265	5,039	236,840	5,730	N/A
42	7-Jan-15	63.0	6,312	5,339	4,714	224,300	5,750	N/A
AVG=		62.7	6,688	5,357	5,023	9,492,143	255,057	TOTAL

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API 47-017-06464 Farm Name Horton, Judy A. Well Number Hayden Unit 1H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	97'	N/A	97'	N/A
Siltstone/Sandstone	0	109	0	109
Shale/ Siltstone	est. 109	169	est. 109	169
Siltstone/ Trace Coal	est. 169	329	est. 169	329
Siltstone/ Shale	est. 329	429	est. 329	429
Shale	est. 429	509	est. 429	509
Sandstone	est. 509	549	est. 509	549
Shale/ Siltstone	est. 549	629	est. 549	629
Limestone/ Shale	est. 629	689	est. 629	689
Shale/ Siltstone	est. 689	829	est. 689	829
Shale/ Limestone	est. 829	909	est. 829	909
Sandstone	est. 909	969	est. 909	969
Shale	est. 969	1089	est. 969	1089
Siltstone/ Trace Coal	est. 1089	1429	est. 1089	1429
Coal	est. 1429	1549	est. 1429	1549
Siltstone/ Trace Coal	est. 1549	1689	est. 1549	1689
Shale/ Siltstone	est. 1689	1909	est. 1689	1909
Sandstone	est. 1909	1956	est. 1909	1957
Big Lime	1956	2061	1957	2062
Big Injun	2061	2437	2062	2439
Gantz Sand	2437	2626	2439	2628
Fifty Foot Sandstone	2626	2659	2628	2661
Gordon	2659	2969	2661	2971
Fifth Sandstone	2969	2998	2971	3000
Bayard	2998	3360	3000	3362
Warren	3360	3713	3362	3715
Speechley	3713	3985	3715	3988
Baltown	3985	4566	3988	4586
Bradford	4566	4979	4586	5030
Benson	4979	5254	5030	5337
Alexander	5254	5429	5337	5534
Elk	5429	5899	5534	6049
Rhinestreet	5899	6164	6049	6346
Sycamore	6164	6339	6346	6563
Middlesex	6339	6469	6563	6749
Burkett	6469	6497	6749	6800
Tully	6497	6530	6800	6876
Marcellus	6530	NA	6876	NA

*Please note Antero determines formation tops based on wireline logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	10/26/2014
Job End Date:	1/6/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06464-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Hayden Unit 1H
Longitude:	-80.83991700
Latitude:	39.23421100
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,611
Total Base Water Volume (gal):	10,740,744
Total Base Non Water Volume:	485,600

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Antero Resources	Base Fluid	Water	7732-18-5	100.00000	90.05999	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	9.54324	
GC-15	J.S. Well Services	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.07302	
			Petroleum Distillates	64742-47-8	60.00000	0.06915	
			Suspending agent (solid)	14808-60-7	3.00000	0.01117	
			Surfactant	68439-51-0	3.00000	0.00438	
HCL Acid (12.6%-18.0%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.09716	
			Hydrogen Chloride	7647-01-0	18.00000	0.02321	
WFRA-405	J.S. Well Services	Friction Reducer	Water	7732-18-5	40.00000	0.02715	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02715	
			Petroleum Distillates	64742-47-8	40.00000	0.02186	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00339	
			Crystalline Salt	12125-02-9	5.00000	0.00339	

SI-1100	U.S. Well Services	Scale Inhibitor					
			DI Water	7732-18-5		80.00000	0.01087
			Ethylene Glycol	107-21-1		40.00000	0.00614
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8		10.00000	0.00183
			2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1		10.00000	0.00175
			hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6		10.00000	0.00170
			Copolymer of Maleic and Acrylic acid	26677-99-6		10.00000	0.00160
			bis (hexamethylene) triamine penta (methylene phosphonic acid) - phosphate acid	40623-75-4		10.00000	0.00156
			Acrylic polymer	52255-49-9		5.00000	0.00068
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent					
			2,2-dibromo-3-nitropropionamide	10222-01-2		20.00000	0.00472
			Deionized Water	7732-18-5		28.00000	0.00270
AP One	U.S. Well Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0		100.00000	0.00180
AI-301	U.S. Well Services	Acid Corrosion Inhibitors					
			Diethylene Glycol	111-46-6		30.00000	0.00015
			Methenamine	100-97-0		20.00000	0.00012
			Hydrogen Chloride	7647-01-0		10.00000	0.00005
			Polyethylene polyamine	68603-67-8		10.00000	0.00004
			Coco amine	61791-14-8		5.00000	0.00002

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

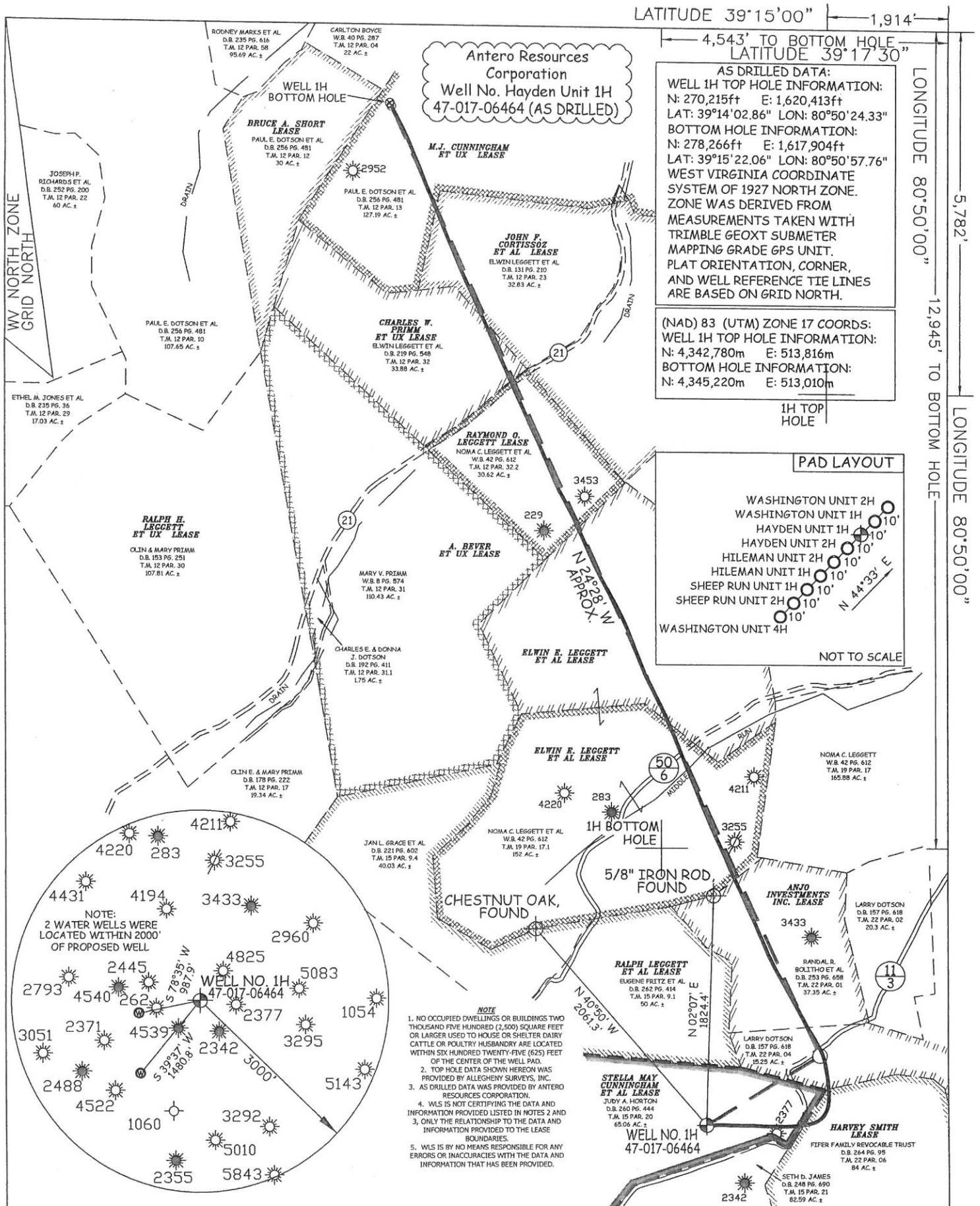
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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MORGANTOWN, WV



JOB # 13-074WA
DRAWING # HAYDEN1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
P.O. BOX 17
PENNSBORO, WV 26415

LEGEND
— Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
X Existing Fence
○ Found monument, as noted
○ Proposed Well Path
○ As Drilled Well Path

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
LOCATION: ELEVATION 1,066' ORIGINAL - 1,053' AS-DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE OXFORD 7.5' (TOP HOLE) WEST UNION 7.5' (BOTTOM HOLE) DISTRICT CENTRAL COUNTY DODDRIDGE
SURFACE OWNER JUDY A. HORTON ACREAGE 65.06 ACRES +/-
OIL & GAS ROYALTY OWNER STELLA MAY CUNNINGHAM ET AL; HARVEY SMITH; ANJO INVESTMENTS INC.; ELWIN E. LEGGETT ET AL; LEASE ACREAGE 65 ACRES+; 450 ACRES+; 50 ACRES+; 79 ACRES+; ELWIN E. LEGGETT ET AL; RAYMOND O. LEGGETT; CHARLES W. PRIMM ET UX; JOHN F. CORTISSOZ ET AL; M.J. CUNNINGHAM ET UX 71 ACRES+; 30 ACRES+; 34 ACRES+; 79.5 ACRES+; 228 ACRES+
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,673' TVD 15,327' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT